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P.O.# 578-B88004

Line #	Description	Qty
1	30Fr/sec Extension	1
2	Azurion 7 Biplane 20/12 Cardiac	1

NNAE604 Azurion 7 Biplane 20/12 Cardiac

Advanced biplane solution for performing interventions in the cardiology domain and complex cardio-vascular interventions

**Key benefits**

- The unique ceiling mounted lateral double arc provides full projection flexibility
- Optimized utilization of your lab by procedure based workflow
- Superb image quality to evaluate small details and vessels with clarity
- Intuitive user interaction delivering an easy to use, easy to learn system

**Enhanced insight of cardio-vascular anatomy**

With our Live Image Guidance we aim to remove barriers to safer, effective and reproducible treatments, delivering relevant clinical value where it's needed most - at the point of patient treatment. Intelligent and intuitive integration of live imaging, patient information, and procedure-based applications optimize real time therapy guidance.

The Philips Azurion 7 B20/12 LCN system offers excellent insight for challenging cardio/cardio-vascular interventions. Additionally, can also be used in neurology interventions. This future proof solution is designed around a single, standardized hardware and software platform that can be upgraded and expanded as new needs arise or requirements change. Its architecture is made to easily integrate with third party applications and devices. A new workflow approach aims to support interventional teams in carrying out more procedures for more patients, more consistently and efficiently.

The Philips Azurion 7 B20/12 LCN uses a range of ProcedureCards to help optimize and standardize system set-up for your cases, from routine to mixed procedures. ProcedureCards can increase the consistency of exams by offering presets (e.g. most-frequently used, default protocols and user-specified settings) on procedure-, physician- or departmental level. In addition, hospital checklists and/or protocols can be uploaded into the ProcedureCards to help safeguard the consistency of interventional procedures and help to minimize preparation errors.

The Philips Azurion 7 B20/12 LCN interventional X-ray suite has been specifically designed to save time by enabling the interventional team to work on all activities in the exam room - and at one or more work spots in the control room at the same time - without interrupting each other. This leads to higher throughput and faster exam turnover and contributes to quality of care.

To improve dose management, Philips Zero Dose Positioning enables you to move the stand and table to the region of interest shown on the last clinical image hold before a new acquisition is started, without any radiation.

Line #	Description	Qty
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**Specifications**

The Azurion 7 B20/12 biplane cardiovascular system comprises a floor-mounted C-arm stand, a ceiling suspended double C-arm stand and digital imaging X-ray system for cardiovascular diagnostic and interventional procedures.

The Azurion 7 B20/12 system is an integrated single-host concept. The system comprises five functional building blocks:

1. Geometry
2. X-ray Generation
3. Image Detection
4. User Interface
5. Viewing.

1. Geometry

The geometry segment offers full cardiovascular projection possibility.

It includes:

Frontal stand

A motorized frontal floor-mounted -stand.

A rotatable base plate (motorized and manually operated) enables a clear area around the patient table. All stand movements are motorized. The manual and motorized parking movement consists of floor-mounted rotation.

Angulation and Rotation of the C-arm is also motorized at high speeds.

Parking of the stand can be done both manual

and motorized, over the full range. With electronic autostop

positions. This motorized movement makes positioning in the

iso-center easy and accurate. It also features comfortable, single

operator control of stand parking. The Azurion stand allows a very wide range of projections, including PA and AP imaging.

In the head position (0 degrees position, L-arm parallel to patient table):

C-arm rotation range (degrees): 120 LAO to 120 RAO

C-arm angulation range (degrees): 45 CA to 45 CR

(Full angulation capability determined by patient position)

In the side position (+90 / -90 degrees position, L-arm perpendicular to patient table):

The depth of the C arm is 105 cm

The stand provides fully motorized fast movements with variable

and configurable maximum speed. Coupled to the BodyGuard

detection system, it allows a very high patient throughput,

supporting the busiest schedules.

Variable C-arm rotation speed, up to: 25 degrees/s

Variable C-arm angulation speed, up to: 25 degrees/s

The variable source image distance between focus and Dynamic

Flat Detector input screen is 89 to 123.5 cm

Lateral stand

A motorized lateral ceiling suspended double C-arc stand.

It allows longitudinal manual and motorized movement on ceiling rails for convenient parking.

Operation is safe and secure due to collision protections on X-ray tube, Flat Detector and inside the double C-arc.

The double C-arc enables:

Motor-driven rotation from frontal to left oblique projections of maximum 90 degrees

Line #	Part #	Description	Qty	Each	Total
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motor-driven angulation in the cranial or caudal direction of maximum 45 degrees. The double C-arc allows these angulations at any rotation manual- or motor-driven axial movement of the Flat Detector assembly for adjusting the patient/flat detector input screen distance focus/flat detector input screen distance 87.5-130.3 cm. The speed of the motorized angulation/rotation movement is 8 degrees/sec whenever the double C-arc is out of its parking position. Parking of the lateral C-arc stand can be done both manually and motorized, over the full range, with electronic autostop positions. Using this motorized movement makes positioning in the isocenter easy and accurate. It also features comfortable, single operator control of stand parking. The motorized longitudinal movement is max 12 cm/sec over max 315cm.

#### Patient support

The Standard Table provides feather-light manual float movement, even for heavy patients, thanks to the unique mono-bearing technology. The long flat carbon fiber tabletop provides ample space to place e.g. catheters and guidewires.

It comprises:

- Table top length of 319 cm, width of 50 cm
- Metal-free overhang 125 cm
- Floating table-top movement of 120 cm longitudinal and 2 x 18 cm transversal
- Motorized height adjustment from 74 - 102 cm
- Maximum patient weight 250 kg plus 500 N in any longitudinal position of the table top

Table accessory set includes:

- 3 rail accessory clamps.
- A patient mattress. A slow recovery foam mattress with a density of 58 kg/m<sup>3</sup>. The mattress has a thickness of 5 cm and adapts to the body shape of the patient. It makes the pressure being divided equally and it recovers when the patient is taken off the mattress. The light blue cover is easy to clean. Patients are more relaxed due to the comfort of this mattress, supporting long interventional procedures.
- Drip-stand.
- Set of cable holders.
- Patient straps

-Set of elbow supports

-Head support

-Arm support board

#### System and Table APC

##### **Helps to save time and manage X-ray dose with automatic positioning**

Positioning the X-ray system to visualize relevant anatomy from different perspectives can involve a great deal of time and many scout images during interventional procedures. To help save time and manage X-ray dose while working, the Automatic Position Controller (APC) provides an easy way for interventional team members to store and recall stand-related positions.

#### 2. X-ray Generation

The Azurion 7 B20/12 comprises an integrated dedicated X-ray system, micro-processor controlled Certeray CFD generator based on high frequency converter technique. The user interface control of this X-ray Generator is

Line #	Description	Qty
	<p>incorporated in the touch screen module, review module, and the on-screen displays.            For each plane, the Certeray CFD generator comprises:</p> <ul style="list-style-type: none"> <li>- X-ray generator 100 kW</li> <li>- Voltage range is 40 - 125 kV</li> <li>- Maximum current 1000 mA at 100 kV</li> <li>- Maximum continuous power for fluoroscopy: 2.5 kW for 0.25 hours, 1.5 kW for 8 hours</li> <li>- Program selection</li> <li>- pulsed X-ray up to 3.75 , 7.5 , 15 , 30 frames/s for digital dynamic exposures</li> <li>- pulsed X-ray for pulsed fluoroscopy (3.75 , 7.5 , 15 , 30 frames/s).</li> <li>- minimum exposure time of 2 ms</li> <li>- automatic kV and mA control for optimal image quality prior to run to save dose</li> <li>- optimal X-ray tube load incorporated in the Certeray CFD generator</li> </ul> <p>Frame rate extension to 30 frames per second.</p> <p><b>Designed to enhance visualization in complex interventions</b>            Frame rate extension to 30Fr/sec increases the system acquisition speed up to 30 frames per second for cardio studies requiring high-speed imaging.</p> <p><b>Specifications</b>            The frame rate extension increases the acquisition speed to 15fps and 30fps with a 1024x1024 matrix.</p> <p>The Azurion 7 B20/12 includes a Maximus ROTALIX Ceramic tube assembly MRC200+ GS 04 07 and cooling unit CU 3101 for cardiovascular systems for frontal plane and for the lateral plane a Maximus ROTALIX Ceramic tube assembly MRC200+ GS 05 08 and cooling unit CU 3101 for cardiovascular systems.</p> <p>The X-ray tube MRC-GS 04 07 assembly comprising:</p> <ul style="list-style-type: none"> <li>- 0.4/0.7 mm nominal focal spot values maximal 30 and 65 kW short time load</li> <li>- grid switching at pulsed fluoroscopy</li> <li>- continuous loadability: 4000 W (at 21 degrees C room temp.)</li> <li>- application of SpectraBeam dose management</li> <li>- tube housing ROT 1001 for oil-cooled X-ray tube with thermal safety switch</li> <li>- cooling unit CU 3000 heat exchanger for use in oil-cooled X-ray tube systems</li> <li>- high voltage cables</li> </ul> <p>The X-ray tube MRC-GS 05 08 assembly comprising:</p> <ul style="list-style-type: none"> <li>- 0.5/0.8 mm nominal focal spot values maximal 45 and 85 kW short time load</li> <li>- grid switching at pulsed fluoroscopy</li> <li>- continuous loadability: 4000 W (at 21 degrees C room temp.)</li> <li>- application of SpectraBeam dose management</li> <li>- tube housing ROT 1001 for oil-cooled X-ray tube with thermal safety switch</li> <li>- cooling unit CU 3000 heat exchanger for use in oil-cooled X-ray tube systems</li> <li>- high voltage cables</li> </ul> <p><b>DoseWise program</b>            Philips DoseWise program is a set of techniques, programs and practices built into the Azurion 7 B20/12 system that ensures excellent image quality during each interventional application, while at the same time reducing x-ray dose at every opportunity.            The DoseWise comprises of three building blocks to help reduce x-ray dose without compromising diagnostic quality: system intrinsic, user selection and awareness.</p> <p><b>System intrinsic</b></p> <ul style="list-style-type: none"> <li>- optimized fully digital imaging chain in maximizing the utilization and technology of the x-ray generator, x-ray tube, flat detector and image processing.</li> <li>- customizable EPX protocols to each application according to user preferences for different</li> </ul>	

Line #	Part #	Description	Qty	Label	Unit
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composition of dose rate, pulse speed, filter setting, and image processing (noise reduction, adaptive contour enhancement, adaptive harmonization)

- built-in SpectraBeam filtering of low energy radiation to optimize image quality and dose efficiency with MRC-GS 0508 X-ray tubes
- pre-filters of 0.2, 0.5 and 1.0 mm CU equivalent can be applied for each plane
- automatic cardiac wedge positioning
- anti-scatter grid, ratio 13:1 in each plane

User selections

- three programmable fluoroscopy modes can be selected from the Imaging UI Each mode has a different composition of dose rate, pulse speed, filter setting, and image processing (noise reduction, adaptive contour enhancement, adaptive harmonization)
- X-ray depth collimator with single semi-transparent wedge filter with manual and automatic positioning.
- Beam Shaping, which means that both shutters and wedges can be positioned on the Last image Hold without the need for X-ray radiation.
- Fluoro Storage, a grab function allows storage and archiving of both a fluoro image or the last 20 seconds (service configurable time) of fluoroscopy run. These images or runs can be archived and reviewed as a regular run.
- removable anti-scatter grids to lower x-ray dose for pediatrics.

User awareness

Radiation Dose Structured Report for collection of dose relevant parameters and settings and export to a DICOM database (e.g. PACS, RIS), according IEC60601-2-43, 2nd Edition. The reported data can be used for analysis, to further reduce X-ray dose.

On-system monitor display provides and displays body zone specific Air Kerma data (10 zones for cardiac applications) in numeric and graphical bars.

- A graphical bar and numeric displays the actual dose rate (during x-ray) or predictive dose rate (at no radiation)
- Second graphical bar and numeric displays the accumulated Air Kerma dose for the particular body zone of the actual projection
- When the accumulated Air Kerma dose of the particular body zone reaches the critical skin dose level of 2 Gy, it will be indicated on the display and made visible to the x-ray operator.

### 3. Image Detection

The Azurion 7 B20/12 comprises the following image detection chain for frontal plane and Frontal imaging chain:

- A 30 cm by 40 cm 20" Dynamic Flat Detector subsystem for fluoroscopy and fluorography procedures
- 8 imaging modes are available, 6"/7"/8"/10.5"/13"/14.4"/17"/19"
- The flat detector subsystem features Access, the detector can be rotated over 90 degrees, it moves from portrait to landscape back and forth.
- The digital output of the 20" flat detector is 2k\*2k image matrix at 16 bits depth for the largest mode
- DQE (Detective Quantum Efficiency) >77 % providing high conversion of X-ray into a digital image, while maintaining a high MTF
- The pixel pitch is 154 x 154 microns

#### Lateral plane:

- A 30 cm (11.6 in.) diagonal triple mode Dynamic Flat Detector subsystem for fluoroscopy and cine-fluorography.
- A 6"/7"/8"/10.5"/11.6" mode Dynamic Flat Detector
- The digital output of the Flat detector is max 1340 x1340 matrix at 16 bit depth.
- The pixel pitch is 154 micron by 154 micron
- The DQE(0) is 77%, providing high conversion of X-ray into a digital image, while maintaining a high MTF.

Line #	Description	Qty
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Top performance is achieved by a Dedicated Image Pipeline Processor that has an equivalent capability of more than 8000 MIPS and is designed for video speed image processing. It includes:

- adaptive contour enhancement at 9 x 9 kernel
- adaptive harmonization enhancement at 192 x 192 kernel
- Xres is an award-winning image processing algorithm.

Xres is a multiresolution spatial temporal noise reduction and edge enhancement filter. It exploits the full benefits of the digital detector to enhance sharpness and contrast and to reduce noise in the clinical images.

The Azurion 7 B20/12 has a storage capacity of 100,000 images at matrix size of 1024 x 1024, 10 bit for each plane. A maximum number of examinations is 999, with no limit to the maximum number of images per examination.

#### 4. User Interface

##### User Interface in Examination Room

The User Interface comprises a variety of User Interface modules in the Examination Room. There is the On-Screen Display, the touch screen module, Viewpad and the control modules.

The On-Screen Display is positioned, depending on configuration, at the bottom of the live and reference monitors or on the left side of the FlexVision monitor 58-inch monitor. The following system information is displayed:

- X-ray indicator
- X-ray tube temperature condition
- Gantry position in rotation and angulation
- Source Image Distance
- Table height
- Table top tilt and cradle angle, if applicable
- Detector field size display
- General System messages
- Selected Frame speed
- Fluoroscopy mode
- Integrated fluoroscopy time
- Skin Dose: dose rate during X-ray and cumulated dose
- Dose Area Product: cumulated dose
- Graphical bars for Body Zone specific accumulated skin dose levels, related to the 2 Gy level (for cardiac applications)
- Stopwatch

##### Two Touch screen modules

The touch screen module is provided for use at either the tableside or in the control room.

Optionally, it is possible to connect in parallel up to three touch screen modules on the system.

The touch screen module has a touch screen, which can be operated when covered with sterile covers. The touch screen module allows control of (depending on configuration):

- 3rd party equipment (e.g. CX50, Interventional Tools, EchoNavigator, DoseAware)
- Monitor layout (FlexVision, switchable monitors)
- X-Ray settings (Collimation)
- Geometry (Projections and Table)
- Viewing (Series selection and image Processing)
- Quantitative Analysis (optional) - User can start QA from the touch screen module

##### Viewpad

The Viewpad contains the preprogrammed function settings. The system is provided with two Viewpads. The following functions are provided:

Line #	Part #	Description	Qty	Unit	Price
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- Series and image selection
- Study cycle
- Study overview
- Store to Reference image file
- Copy image to photo file
- Recall reference images, which means switching control of Viewpad function from life to reference monitor
- Laser pointer, intended to point at regions of interest on the image monitors
- LED indication of laser pointer on/off and battery low

#### Control modules

The geometry control module can be positioned at three sides of the patient table, while keeping the button operation intuitively logical. The geometry control module provides the following functionality:

- Tabletop float
- Table height position
- Table tilt angle if function is applicable
- Source Image Distance selection
- Gantry positioning (both frontal and lateral)
- Gantry rotation in an axis perpendicular to the floor (both frontal and lateral)
- Geometry reset button, which resets stand and table to a factory-default starting position
- Emergency stop button
- Execute button of the Automatic Positioning Control (APC) if applicable
- Unlocking button for table pivot function (if option is installed)
- Table tilt and cradle controls (if option is installed)

The imaging control module can also be positioned at three sides of the patient table. It provides the following functionality:

- Fluoroscopy Flavor selection defined per setting
- Shutters and Wedge positioning (for both frontal and lateral plane)
- Manual or automatic semi-transparent wedge filter
- Fluoro Storage
- Selection of the Detector field size
- Reset of the fluoroscopy buzzer
- Roadmap Pro activation if function is available

The control module is provided with a protection bar. This removable bar protects the buttons from unintended control.

#### Pan Handle

The pan handle is an optional extension of the control possibilities for floating movements of the table top in cardio vascular and neuro systems

#### Key benefits

- Flexible positioning during cardio and neuro procedures

#### Flexible positioning during cardio and neuro procedures

To allow more flexible positioning during cardio and neuro procedures, the pan handle option can be used to perform floating table movements. The pan handle provides a solid grip of the tabletop and can release and apply the tabletop brakes. It can be attached anywhere along the tabletop and accessory rails without affecting the floating range.

#### Specifications

Pan handle with cable and connector

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Line #	Description	Qty
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Table-top attachment clamp  
Accessory-rail attachment clamp

#### User Interface in Control Room

With Philips Azurion the control room comprises of a review module, an acquisition monitor and a review monitor. The acquisition and review functions are controlled by a single keyboard and mouse.

The review module offers the basic functions for reviewing images on the acquisition monitor. The most prominent functions can be controlled by the push of a button. The review module comprises the following functionality:

- Power on/off
- File and series cycle
- File, Series, and Image stepping
- Series and file overview
- Reset fluoroscopy buzzer
- Enable/disable X-ray
- Disable Geometry movements

The acquisition monitor is intended to follow live case in the ER. The live images for the frontal and lateral channels are always synchronized and displayed side by side on one monitor. System information is displayed on the bottom of the monitor:

- Stopwatch and Time
- System guidance information
- Dose Area Product (DAP), Cumulative Skin Dose, Skin Dose rate as well as graphical bars for Body Zone specific accumulated skin dose levels
- Frame speed settings, fluoroscopy mode, and accumulated Fluoroscopy time
- Exposure and fluoroscopy settings as Voltage (kV), Current (mA) and time (ms)
- Geometry information as rotation, angulation, and SID

#### Patient Administration

In the scheduling page it is possible to add new patients (either querying from RIS/CIS or by creating patient locally). The patients can be listed and selected per date, physician, and intervention type. Previous DICOM patient studies can be uploaded with the DICOM Query Retrieve function in the Philips Azurion system. Patient management protocols are flexible and allow for multiple studies to be selected under one patient identification number. This means that new studies can be appended to an earlier patient file. Furthermore, each study can contain multiple examinations to allow for split administrative purposes. Each examination contains multiple files, like acquisition file, reference file, and photo file.

#### ProcedureCards

ProcedureCards provide the information of room and patient preparation for each individual physician. ProcedureCards are customizable per setting and allow each physician to provide their own room protocols. ProcedureCards with Checklists and Protocols is intended to make hard copies of the protocol instructions redundant.

#### Acquisition

The acquisition page contains information on the currently selected patient and allows control of the acquisition settings.

#### Quantitative Vascular Analysis

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Line #	Description	Qty	Unit Price	Total Price
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**Key benefits**

- Allows quantitative assessment of different size vessels such as aortic and peripheral
- Aids confident decision making for device selection, approach angles and follow-up
- Designed for efficiency with single click functions and fast results

**Easily obtain objective assessment of aortic and peripheral vasculature**

To support decision making and allow quantitative assessment of vasculature during vascular interventions, the 2D quantitative vascular analysis option supports quantification such as aortic and peripheral artery dimensions of about 5 to 50 mm from 2D angiographic images. With one click, the relevant segment is detected and a visualization of the obstruction, healthy vessel, reference diameter, stenosis diameter and plaque area is created.

**Specifications:**

- Automated vessel segmentation
- Diameter measurement along selected segment
- Automated obstruction analysis
- Stenosis diameter, stenosis length
- % stenosis diameter, % stenosis area
- Automated and manual calibration routines
- Store result page

Analysis of the targeted vessel segment has been simplified with the single click function. Position the mouse on or close to the stenotic area and click once to detect the relevant segment. The visualization shows the obstruction, healthy vessel, reference diameter, stenosis diameter and plaque area.

**Reviewing**

The review page allows for reviewing of patients:

- Previous examination cases
- Review of other DICOM XA or DICOM SC studies.

**Archiving**

Clinical cases can be archived to a CD/DVD, USB or a PACS. The archive process can be completely automated and customized with settings. Parameters like multiple destinations, archive formats can be selected to the individual needs and wishes for programming under the settings.

The review monitor is a 24 inch color TFT-LCD medical grade monitor.

The Review monitor can be used while acquisition is being performed in the examination room and has the following features and possibilities:

- Step through file, series, or images
- File, and series overview
- Contrast, brightness, and edge enhancement settings
- Flagging of series or images for transfer
- Applying text annotation in images
- DICOM printing if available
- Executing Quantitative Analysis Packages if available
- Subtraction functionality if available

This system is delivered with printed instructions for use and/or electronic instructions for use, as well as a quick start leaflet. A printed paper instructions for use can also be ordered at no additional cost.

**5. Viewing**

Viewing in the Examination room

Line #	Description	Qty
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The Azurion 7 B20/12 system comes with two 27 inch color medical grade LCD monitors for clinical image display in the Examination room. These LCD monitors are intended for viewing in the examination room and are designed for medical applications.

One of the monitors is used for viewing of frontal and lateral live images. The other monitor serves as the frontal and lateral reference displays. Selection and storing of live to reference monitors is controlled by the infra-red remote-control Viewpad.

The On-Screen Display provides status information on stand rotation-angulation, table height, display of system messages, X-ray tube load status, selected fluoroscopy mode, selected detector Field of View, and both the rate and accumulation of the dose area product and Air Kerma dose.

The main characteristics are:

- 27 inch color TFT-LCD display
- Native format 2560x1440 Quad HD
- 10 bit gray-scale resolution with gray-scale correction
- Wide viewing angle (approx. 178 degrees)
- High brightness (max 500 Cd/m2, default 350 Cd/m2)
- Push buttons for control functions on front
- User programmable and standard reference setting
- On Screen Display
- Internal selectable lookup table for gray-scale transfer function
- Internal power supply (110-240 VAC)
- Integrated LCD protection screen

Unless otherwise stated a flat monitor ceiling suspension for 2 widescreen monitors (2F MCS) is included. MCS includes motorized Height adjustment. The Ceiling suspension allows flexible monitor positioning over a range of about 360 x 300 cm.

Viewing in Control room

DICOM compatibility

The Azurion 7 B20/12 system includes the DICOM Image Interface which enables the export of clinical images to a DICOM destination like a CD-Medical station or a PACS server.

The export formats are based on DICOM 3.0 protocols.

The system exports clinical studies in Cardiac DICOM XA Multi-Frame or DICOM Secondary Capture formats.

The DICOM Image Interface transfers through its fast Ethernet link, making images available on-line within seconds.

The archive process can be configured by Settings. The images are sent out either in the background, or manually upon completion of the examination.

The export format is configurable in 512x512 or 1024x1024 matrix in 8 or 10 bit depth. The examination can be sent to multiple destinations for archiving and reviewing purposes.

The DICOM Image Interface provides DICOM Storage and DICOM Storage Commitment Services.

The DICOM Query/Retrieve function allows older DICOM XA MF and DICOM SC studies to be uploaded in the system.

Furthermore, additional information can be appended to a study while keeping the patient identification the same.

Remote Intercom

Data Integrity UPS

Uninterruptable Power System (UPS)

**Ensures data integrity**

A power failure of the hospital mains during an intervention can cause loss of data. If this occurs, the single phase Uninterruptable Power System (UPS) enables a proper shut-down of the X-ray system processor units.

**Line #**                      **Description**                      **Qty**

Remote service

Access to the system from a Remote location is possible via network or modem connection. Remote access to a system can shorten the time needed for e.g. changing system settings or problem diagnosis.

**Clinical Education Program for Azurion System:**

The purchase of the Azurion System includes a StartRight entitlement pool that allows for the customized delivery of educational events to improve staff time to proficiency, knowledge on system features, and improve overall lab efficiency. For new users, the recommended series of educational events includes:

Essentials OffSite Education: Philips will provide up to two (2) Cardiovascular Technologists, Registered Technologists, Registered Nurses, or other system operator as selected by customer, with in-depth didactic, tutorial, and hands-on training covering basic functionality and work-flow of the cardiovascular imaging system. In order to provide trainees with the ability to apply all fundamental functioning on their system, and to achieve maximum effectiveness, this class should be attended no earlier than two weeks prior to system installation. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This class is a prerequisite to your equipment handover OnSite Education. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. In the event that an EP Navigator workstation has also been ordered, the offsite training course will be tailored to focus on the electrophysiology functionality of the FD system and the EPN workstation. Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292102 (CV Full Travel Pkg OffSite) is purchased with all OffSite courses

Initial Handover OnSite Education: The primary Philips Education Specialists will provide twenty-eight (28) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Students should attend all 28 hours, and must include the two OffSite education attendees. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. It is highly recommended for systems that are fully loaded or for customers with a large number of staff members to also purchase 989801292099 (CV Add OnSite Clin Educ 24h).

FollowUp OnSite Education: Philips Education Specialists will provide sixteen (16) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Students should attend all 16 hours, and must include the two OffSite education attendees. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

Assessment OnSite Year 1: The primary Philips Education Specialist will perform a two day onsite assessment at the customer site on or close to the first anniversary of the Initial Handover. The Specialist will assess through various means not limited to; physical observation of procedure workflow, tool usage data analysis and staff interviews. The Specialist will then review findings

Line #	Description	Qty
	with department head and make recommendations thereof. The Specialist may perform refresher training if required.	
	Education expires one (1) year from installation date (or purchase date if sold separately). Ref#296339296340296341296342-20170209	

3	<b>Azurion FlexVision10 Input</b>	1
	Eight Isolated Wall Connection box to support the display of an external video source on a monitor in the examination room.	

Key benefits

- Stream video from other modalities on the interventional X-ray suite:
- Connect external video in the exam room

Easily stream video to other locations

Many interventional facilities use video to record and stream images from other modalities on the interventional X-ray suite for training or presentation purposes. The Video Wall Connection Box facilitates connection of the video source via a standard DVI cable/connector and lossless transfer of the video signal over the approximate 30 meter long cable. It can be mounted in the examination room or in the control room, depending on the location of the video source.

Specifications

The quantity of the VWCB's has to be calculated as follows:

For each video signal via MultiVision: 1 VWCB (max = 4)

For each video signal to FlexVision XL on Cardio System: 1 VWCB (max = 9)

For each video signal to FlexVision XL on Vascular System: 1 VWCB (max = 8)

For each 3rd party video signal directly connected to an LCD in the MCS: 1x VWCB

Note:

No VWCB is required in case a video signal is connected directly to a dedicated LCD from the following sources:

1. Live/ref Slaving
2. Interventional HW (XtraVision), IntelliSpace Portal, Philips Xcelera (only if workstations are powered by Philips X-ray system)
3. XperIM

Two Isolated Wall Connection box on the rear side of the monitor ceiling suspension to support the display of an external video source on a monitor in the examination room.

Key benefits

- Easily connect external video in the exam room

Line #	Description	Qty
	Specifications	

A wall connection box to connect external video (input only), USB and Ethernet. One or two WCB's (option) can be attached on the rear side of the 1st MCS with a bracket. A cable box (also attached to rear side of 1st MCS) can be used to store connected equipment cables. A maximum of two WCBs/cable boxes can be attached.

4	<b>FlexSpot</b>	1
	Integrated work spot in the Control Room to view, control and manipulate all applications within a single view	

**Key benefits**

- Access all applications on one compact workplace in the control room
- Set up unlimited custom screen layouts with all relevant information in one view
- Full flexibility of screen layouts (live resize, drag and drop)
- Clutter free and clean control room

**Simplify control room workflow**

Typical interventional control rooms are equipped with several workstations and controls to support procedures that require extra handling and space. FlexSpot helps you save time and space in the control room by giving you seamless access to all applications on one compact workplace. Easily set up any screen layout desired with all relevant information in one view. Resize, drag and drop items just like a tablet.

**Specifications**

FlexSpot offers an integrated workspot in the Control Room with one or more high resolution QHD (2560x1440) displays.

- Show internal video sources (e.g. Review, CR Live)
- Show up to 11 external video sources (e.g. Ultrasound, EchoNav, etc.)
- Video sources can be flexibly displayed on FlexSpot through user customizable presets. Users can customize the displayed layout and assign video sources to viewports as desired
- Up to 4 video sources can be displayed on a single FlexSpot display (excluding the add-on FlexSpot).
- Per display, the user can choose between 7 different layouts (positioning of viewports)
- FlexSpot offers user interaction through a keyboard and mouse with which users can seamlessly control all video sources on screen. Seamless means that users can move out of one viewport and into another without needing to press a special keyboard shortcut or use a gesture.
- In systems with both FlexSpot and FlexVision, FlexSpot offers convenient control access of FlexVision from the primary FlexSpot workspot.
- Users can define their own preset groups and preset names.
- Through field service, users can assign their own custom name and icon to a video source (also applies to FlexVision)
- The X-ray status area with all X-ray details is always visible on the primary display of the primary FlexSpot workspot.
- Up to 3 Philips workstations can be integrated into the technical room. With this, the workstations are powered from the system and are fully integrated into the system. Users do not need to separately power on/off these workstations.
- The snapshot function allows the user to store/save a screen-capture of any image on the FlexSpot as a photo image to the current Acquisition Patient study.
- 27 inch high brightness color LCD monitor for clinical image display in the Control Room.

The main characteristics for color monitor are:

- 27 inch color TFT-LCD display
- Native format 2560x1440 Quad HD
- High brightness (max 500 Cd/m2, default 350 Cd/m2)

Line #	Description	Qty	Each	Price
	<ul style="list-style-type: none"> <li>- Wide viewing angle (approx. 178 degrees)</li> <li>- Long term luminance stability through backlight stabilization circuit</li> <li>- Automatic brightness control with backlight sensor</li> <li>- Control functions on side</li> <li>- User programmable and standard reference setting</li> <li>- On Screen Display</li> <li>- Internal selectable lookup table for gray-scale transfer function, including DICOM</li> <li>- Internal power supply (100-240 VAC)</li> <li>- Integrated USB hub</li> </ul>			
5	<p><b>ClarityIQ...</b></p> <p>Low dose across clinical areas, patients and operators.</p> <p><b>Key benefits</b></p> <ul style="list-style-type: none"> <li>• High-quality imaging at low dose levels</li> <li>• Enhanced work environment for staff through active management of scatter radiation</li> <li>• Expands treatment options – enables longer procedures to treat obese and high-risk patients with confidence</li> </ul> <p><b>See with confidence every time</b></p> <p>Interventions are becoming increasingly complex, which lengthens fluoroscopy time and increases the need for high resolution imaging. New devices can be more difficult to visualize, making it harder to position them precisely. The prevalence of patients with a high BMI can also require increased dose levels to visualize anatomy. All of these factors inspired us to completely redefine the balance in interventional X-ray with Azurion.</p> <p>Azurion with its unique ClarityIQ technology gives you exceptional live image guidance during treatment. What's more, you can confidently manage low X-ray dose levels without changing your way of working. In short, you can see what you have to regardless of patient size.</p> <p><b>Specifications</b></p> <p>ClarityIQ technology is the foundation of Philips X-ray systems with Azurion. It offers:</p> <ul style="list-style-type: none"> <li>- Noise and artefact reduction, also on moving structures and objects</li> <li>- Image enhancement and edge sharpening</li> <li>- Automatic real-time patient and table motion correction on live images</li> <li>- A flexible digital imaging pipeline from tube to display that is tailored for each application area</li> <li>- Over 500 clinically fine-tuned system parameters making it possible to filter out more X-ray radiation and use smaller focal spot sizes and shorter pulses with the grid switching technology of Philips MRC tube and accompanying generator</li> </ul>	1		
6	<p><b>FlexSpot secondary monitor</b></p> <p>FlexSpot secondary monitor</p> <p><b>Simplify control room workflow</b></p> <p>This option adds a second QHD (2560x1440) high resolution monitor to the primary FlexSpot workspot.</p> <p><b>Specifications</b></p> <p>2nd Display for FlexSpot enables the user to show up to 8 video sources on a single FlexSpot workspot by combining 2 high resolution displays. Keyboard and mouse control is seamless across the 2 displays, see FlexSpot.</p>	1		
7	<p><b>StentBoost Live</b></p>	1		

Line #	Description	Qty	Price
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When inserting a stent in complex cardiac vasculature, inexact positioning and under deployment are always a challenge. StentBoost Live allows physicians to improve the visualization of balloons and stents in coronary arteries on-the-fly to clarify the situation at any moment during an intervention. The user simply presses and holds the foot pedal to boost visualization during the cine run. He can use StentBoost Live to check the position of a device in real-time and confirm stent expansion while the balloon markers are still in place. He can then take any corrective action immediately if required.

To do this, StentBoost Live automatically detects the balloon markers in each acquired image. The detected markers are aligned with the markers found in previous image(s) and temporal and spatial filtering is applied to enhance all radiopaque material in close proximity to the markers. All of this occurs in a few hundreds of milliseconds to produce an enhanced visualization in real-time. StentBoost Live can be applied to any cine run acquisition and at least four frames of images are required.

StentBoost Live features include:

- Automatic marker detection
- Real-time image enhancement during the StentBoost Live run
- Immediately after acquiring the StentBoost Live run, the run is automatically looped three times to allow for further review
- StentBoost Live functionality is fully integrated in the interventional X-ray system
- Image snapshots or movies can be archived to any DICOM compatible PACS. These include DICOM XA and DICOM SC

Note: when ordering Dynamic Coronary Roadmap and/or StentBoost Live for a non-FlexVision system a single dedicated color monitor must be added to the MCS.

IXR StentBoost Imaging Systems OnSite Education:

Philips Imaging Systems Clinical Education Specialist will provide eight (8) hours of education for up to four (4) students, as selected by customer, including technologists from weekend/night shifts as necessary. CEU credits are not available for this portion of training. Please refer to guidelines for more information. Note: Site must be patient ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref#296309-20170315

8	<b>Pivot for table base.</b>	1	
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For angiographic- and interventional procedures of the upper peripherals.

Provides improved table access for patient transfer.

Allows pivoting of the table base around its vertical axes.

Pivot range from -90 degrees to + 180 degrees (or -180 to +90 degrees) with locked positions on 0, -13/+13 (facilitating arm-angiography) and -90/+90 and 180 degrees.

Comprising:

- pivot device with graduated scale to be mounted on the universal floor plate of the table.

Compatible with Xper Table

9	<b>Wireless footswitch: bi-plane version</b>	1	
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Line #	Description	Qty
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One wireless footswitch in the Examination Room.

**Key benefits**

- Reduces clutter around the examination table
- Simplifies preparation and cleanup
- Streamlines workflow in the interventional suite

**Reduce clutter and streamline workflow**

The wireless footswitch option streamlines workflow, reduces clutter, and simplifies preparation and cleanup in the interventional suite. Clinicians can use the footswitch to wirelessly control the X-ray system in the examination room, from any convenient position around the table. No sterile covers are needed with the IPX8 certified waterproof design.

**Specifications**

- The bi-plane wireless footswitch is a 6 pedal version;
  1. Bi-plane fluoro
  2. Channel selection
  3. Room light control/Single shot
  4. Frontal fluoro
  5. Exposure
  6. Lateral fluoro.
- The pedals can be configured according customers preferred lay-out.
- The wireless footswitch is working via RF technology and is fully tested and released for medical use. It has an active range up to 10 meters, depending on structures within this range.
- The wireless footswitch has a lithium battery which only needs to be recharged once per week. During recharging the footswitch still can be used and is fully functional. In parallel, a wired footswitch can also be used.
- The status of the battery is indicated by an LED-indication on the footswitch itself, so that the user can decide when the footswitch needs to be recharged.
- The wireless footswitch can easily be cleaned in water. It has high water ingress protection standard (IPX8).
- The wireless footswitch has an on/off switch. It can be switched off when not in use. When the footswitch is active, but not in use, it will go into a sleep-mode. It will be re-activated when touched or when one of the pedals is pressed.

10	SmartMask Biplane	1
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**Key benefits**

- Simplifies roadmap procedures by overlaying fluoroscopy with a selected acquired image.
- Enables roadmap procedures to manage radiation dose and contrast media by selecting an image from an acquired series as a mask image.

**Supports navigation during interventions without the need of additional contrast media.**

SmartMask simplifies roadmap procedures by overlaying fluoroscopy with a selected acquired image in the Live X-ray window.

**Specifications**

Alternative to the roadmap Vessel phase, the user can directly select an image from any stored run and use it as the VesselMask ('SmartMask') for the Device phase.

11	DVD writer	1
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Line #	Part #	Description	Qty	Label	Time
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**Key benefits**

- Store images and information on DVDs for easy sharing

**Store images and information on DVDs for easy sharing**

To provide flexible storage options, a DVD writer is available with the Philips X-ray system. Procedural images and information can be stored on DVDs and used for archiving, training and presentations.

**Specifications**

Export and import of X-ray images and X-ray runs to DVD and/or from DVD

12

**FlexVision XL HD**

1

FlexVision XL HD is an integrated viewing solution designed to give you full control over your viewing environment which brings High Definition viewing.

**Key benefits**

- Easily access multiple, up to 8, video inputs (including third party systems) video inputs to inform decision making during procedures
- Create custom display templates to support diverse procedures
- The screen layout of the FlexVision XL HD can also be changed from the control room
- Enlarge images to reveal more details and support comfortable working positions

**Diagnostic information easily made available at table side**

In today's interventional setting, as you perform more complex procedures with smaller devices in complex anatomy, you rely on various types of diagnostic information to guide you. To inform decision making in the exam room, Philips offers an advanced digital workspace called FlexVision HD. You can display multiple images in a variety of custom layouts on a large, high-definition LCD screen. Zoom in and out to enhance fine details, while maintaining an overview of all information. Create custom display templates for specific procedures/physician preferences to easily support diverse procedures.

**Specifications**

FlexVision XL HD offers:

- Native resolution of FD20 can be displayed.
- Sharp images at full size without zoom
- High Definition display at native resolution for ultimate detail
- Up to 2k\*2k image display fully integrated
- Enhanced small vessel visualization

1. DVI video composition unit.

The DVI video composition unit allows the user to direct and switch the video output of all connected medical equipment to specific sub windows of the Philips 58-inch color LCD with LED backlight in the Examination Room.

- The DVI video composition unit is operated from the touch screen module.
- The DVI video composition unit supports a wide variety of display formats (up to 1920x1200)
- Up to 11 external inputs are connected to the DVI video composition unit via wall connection box or boxes.

2. Medical grade, high resolution color LCD in the Examination Room

This display supports the image quality requirements for monochrome X-ray images as well as color images and replaces all displays normally delivered with the system for the Examination Room.

Main characteristics are:

- 58-inch, 8 Megapixel color LCD
- Native resolution: 3840x2160
- Brightness: Max: 700 Cd/m2 (typical) stabilized: 400 Cd/m2
- Contrast ratio: 1:4000 (typical)
- Wide viewing angle (approx. 176 degrees)

Line #	Description	Qty
	<ul style="list-style-type: none"> <li>- Constant brightness stabilization control</li> <li>- Lookup tables for gray-scale, color and DICOM transfer function</li> <li>- Full protective screen Ingress Protection: IP-21</li> </ul> <p>3. Large color LCD control (touch screen module)</p> <ul style="list-style-type: none"> <li>• Enlarge information at any stage during the case via the touch screen module in the Examination Room or Control Room.</li> <li>• Select viewing lay-outs via the touch screen module in the Examination Room.</li> <li>• Create new layouts by matching inputs to desired locations on preset templates.</li> <li>• Adjust the screen layout during the procedure without going into configuration</li> <li>• 20 layouts; each layout is customizable, size of viewports can be customized by end user X-ray status area visible with all X-ray details</li> </ul> <p>4. Monitor ceiling suspension</p> <p>Monitor ceiling suspension for use in the Examination Room carries the 58-inch color LCD, providing highly flexible viewing capabilities. The monitor ceiling suspension is height-adjustable and moveable along ceiling rails. It can be positioned on either side of the table.</p> <p>5. Snapshot</p> <p>The snapshot function allows the user to store/save a screen-capture of any image on the FlexVision HD as a photo image to the current acquisition patient study.</p>	
13	<p><b>Rad Shield w/ Arm (Contoured) 61X76</b></p> <p>Contoured Rad Shield with Arm rest. 61X76</p>	1
14	<p><b>PIVOTING TABLE-MOUNTED RADIATION SHIELD</b></p> <p>Table-mounted radiation shield for additional protection of physician and staff against scatter radiation. The shield consists of two protective parts: a lower shield and an upper shield. The shield is specially designed for use with the AD57 patient table.</p> <p>The table mounted radiation shield provides the following features:</p> <ul style="list-style-type: none"> <li>• Mounting to either the right or left table accessory rails;</li> <li>• Pivoting into the required working position;</li> <li>• Pivoting into the parking underneath the tabletop facilitating patient preparation;</li> <li>• The upper shield can be positioned upright providing optimal protection or can be folded down for free access to the patient.</li> </ul> <p>The table mounted radiation shield includes:</p> <ul style="list-style-type: none"> <li>• Lower shield measuring 70 cm high 80 cm wide 0.5 mm Pb equivalence;</li> <li>• Upper shield measuring 40 cm high 50 cm wide 0.5 mm Pb equivalence;</li> <li>• Mounting clamp;</li> </ul> <p>Docking device for wall mounting.</p>	1
15	<p><b>**989801220012 Cable Spooler</b></p>	1
16	<p><b>**989801220037 M LED 3MC Light</b></p> <p>MAVIG M3 MC LED - Multi Color / power Supply Included Includes Portegra2 Ext Spring Arm 75/90cm</p>	1
17	<p><b>**989801220273 Ceiling Track w/Column &amp; Handle Ext</b></p>	1

Line #	Description	Qty
	Mavig 2.5m Ceiling Track with Ceiling trolley, 360 degree column, and brake handle extension.	
18	<b>IXR Additional Training 8 Hours OnSite</b>	1
	<p>Clinical Education Specialists will provide eight (8) hours of CV OnSite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from the earlier of equipment delivery date or purchase date.</p>	
19	<b>IXR Additional Training 16 Hours OnSite</b>	1
	<p>Clinical Education Specialists will provide sixteen (16) hours of CV OnSite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from the earlier of equipment delivery date or purchase date.</p>	
20	<b>Equipment Rack DVI</b>	1
	<p>The Equipment Rack for EP cockpit allows users of the Philips Allura Xper[Clarity] system to organize all the equipment used in an EP Lab on one moveable rack and removes cable clutter through a cable conduit. This provides a much "cleaner" organized look for the busy EP Lab. The ceiling-mounted Equipment Rack, located in the Exam Room, can support 3rd party equipment. Cabling for this equipment is guided up through the ceiling mounted suspension. It can be moved by swiveling the ceiling mounted boom. The Equipment Rack can be positioned within a circular range of 1.6 meters.</p> <p>The Equipment Rack consists of:</p> <ul style="list-style-type: none"> <li>• 5 shelves and 1 drawer with flexible mounting position and can support 150kg of equipment weight.</li> <li>• An infusion extension rod</li> <li>• An extension arm with a standard VESA mounting plate, on which different types of equipment can be mounted</li> <li>• A Wall Connection Box (1 of the standard EP cockpit Wall Connection Boxes) with Power (230V, 50Hz), Grounding, Network (RJ45), Keyboard/mouse (USB) and Video (DVI) connections</li> <li>• 10 country-specific power connectors</li> </ul> <p>Note: For USA/Canada 16 country specific power connectors</p> <ul style="list-style-type: none"> <li>• 4 Ethernet network connectors</li> <li>• Ergonomically operating handles with electric brakes</li> <li>• Standard gas outlets for O2, NO2, and Vacuum</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>• Life-supporting equipment cannot be connected to the Equipment Rack.</li> <li>• Medical equipment with dedicated keyboards or displays should not be connected without consent of the manufacturer. Please contact your 3rd party equipment vendor for information and clearance.</li> <li>• Please contact 3rd party equipment vendor for information and clearance in case of cable routing through equipment rack.</li> <li>• The Wall Connection Box can be used to connect 3rd party equipment that complies with the following requirements:</li> <li>• Qualified medical electrical equipment [IEC 60601-1]</li> </ul>	

Line #	Description	Qty
	<ul style="list-style-type: none"> <li>• IEC 950 only if connected to an EP cockpit Wall Connection Box mains (230V) connection in the Control Room or otherwise isolated from hospital mains according IEC60601-1.</li> <li>• Connected to the same earth as the Philips Protective Conductor Bar (PPCB).</li> <li>• Can be operated with a standard AT 101-key US English keyboard connected through a USB connection.</li> <li>• Provide video-output that matches the display range of the Color monitor that is used for display. Standard VESA video formats up to 1920x1200 are supported</li> </ul>	
21	<b>Equipment rack Predelivery set</b> Pre-delivery for Equipment Rack.	1
22	<b>Electrical Accessory kit OSC</b>	1
23	<b>Pre-Install Bracket</b>	1
24	* <b>Pneumatic Regulator</b>	1
25	<b>Full Load Remote UPS</b>	1
	MGE Galaxy 5000 80 kVA Full Load – 40kW UPS with remote capability. Includes top feed cabinet and optional side panels, ISX0001369526 G5TUPSU80KPAdjacent MGE Galaxy 5000 Battery Cabinet with one full string of batteries and standard Galaxy 5000 Adjacent battery Temp sensor. High Voltage 6 Alarm Relays Card MGE GALAXY 5000 Remote Alarm Status Panel MGE SNMP/Web Communication Card Top Feed Auxiliary Cabinet In the event of a power loss the UPS provides emergency power to allow system function and full X-Ray exposure and fluoroscopy for up to 15 minutes.	